



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,693	04/04/2001	Mario Nemirovsky	P3819	4332

24739 7590 02/27/2004

CENTRAL COAST PATENT AGENCY
PO BOX 187
AROMAS, CA 95004

EXAMINER

BRAGDON, REGINALD GLENWOOD

ART UNIT	PAPER NUMBER
----------	--------------

2188

DATE MAILED: 02/27/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,693

Applicant(s)

NEMIROVSKY ET AL.

Examiner

Reginald G. Bragdon

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant should update the status of the application on page 1 of the specification, as appropriate.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Quattromani et al. (5,471,598).

As per claims 1, 3, and 5, Quattromani et al. teaches a unified cache memory 70 which stores data (“data cache”) attached to a write buffer 27 (“bypass system”). See figure 4. The write buffer includes two latches, 162x and 162y, which output values to the cache (“two ports to the data cache”), a plurality of write buffer entries, 152x0-x5 and 152y0-y5, (“registers for multiple data entries”), a bus connecting the write buffer 27 with the core 20, and write buffer control logic 150 (“address matching and switching logic”). Each write to the memory or cache (including write hits) are stored in the write buffer 27 (“characterized in that write operations that hit...written to the data cache”). See column 3, lines 20-22. Furthermore, reads after writes are compared in the write buffer control logic and if a physical address of data stored in an entry of

Art Unit: 2188

the write buffer 27 matches a physical address of a read operation from the core (see column 21, lines 17-21 and 32-39), then it is determined if the entry or entries are bypassable (see column 22, lines 42-60). If the entry is bypassable, then a process is performed by the write buffer control logic 150 to enable the sourcing of contents of the data portion of the write buffer entry directly to the core 20 (“read operations use the address matching logic...stored in the data cache memory array”). See column 22, line 65, to column 23, line 3, and figure 11. It is noted that each write of an entry in the write buffer to the data buffer results frees the ports to be used in further write operations.

As per claims 2, 4, and 6, Quattromani et al. teaches 6 distinct entries (i.e. 152x0-x5) and 32 bits of data storage (see column 9, lines 52-53).

Response to Arguments

4. Applicant's arguments filed 14 January 2004 have been fully considered but they are not persuasive.

On page 5 of the response (through line 3, on page 6, of the response), Applicant describes what the “invention teaches”. However, the limitations that Applicant refers to, in many instances, are not supported by the claim language.

Applicant goes on to state that “Quattromani, in contrast, does not specifically teach that the read operations use the address matching logic to search the elements (write operations) of the bypass structure to identify and use any one or more of the entries representing data more recent than that stored in the data cache memory array...”. Applicant supports this argument by citing column 21, line 11, to column 22, line 60. However, it is not clear how the cited section of

Art Unit: 2188

Quattromani et al. does not teach read operations that use the address matching logic to search all entries in the write buffer. The “write control buffer logic 150” corresponds to the claimed “address matching logic”, and performs the function of comparing the read physical address against each of the physical address values in all write buffer entries (column 21, lines 17-21).

Applicant argues on page 7 that Quattromani et al. teaches an alternative invention for accomplishing an alternative purpose than that of Applicant’s invention. This is not persuasive since Quattromani et al. teaches the same structure as claimed by Applicant, for the same purpose (i.e. the write buffer entry that contains the data desired by the read operation is sourced to the core), as set forth in the rejection. Furthermore, the claim language “such that a subsequent write operation...to the data cache memory array” is an intended use limitation and does not result in a structural difference between the claimed invention and Quattromani et al.

In summary, Quattromani et al. teaches all of the elements of Applicant’s claimed invention, including the claimed “address matching logic” which compares the read operation address to each entry in the pending write buffer.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2188

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any response to this final action should be mailed to:

Box AF
Commissioner of Patents and Trademarks
Washington, D.C. 20231

All "OFFICIAL" patent application related correspondence transmitted by FAX must be directed to the central FAX number at (703) 872-9306.

"INFORMAL" or "DRAFT" FAX communications may be sent to the Examiner at (703) 746-5693, only after approval by the Examiner.

Hand-delivered responses should be brought to Crystal Park II, 2121
Crystal Drive, Arlington, VA., Fourth Floor (receptionist).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reginald G. Bragdon whose telephone number is (703) 305-3823. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 4:30 PM and every other Friday from 7:00 AM to 3:30 PM.

The examiner's supervisor, Mano Padmanabhan, can be reached at (703) 306-2903.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

RGB
February 26, 2004

Reginald M. Bragdon
Reginald G. Bragdon
Primary Patent Examiner
Art Unit 2188